

U.S. Serial No. 10/757,551

**REMARKS**

Claims 1-77 and 80 are pending in the application. Applicants have amended the claims to recite "oxidation and wear resistant" for additional clarity. Oxidation resistance is discussed at page 17, lines 20-24. Wear resistance is discussed in Examples 4, 8 and 15. The relationship between wear resistance imparted by cross-linking with irradiation and oxidation resistance imparted by doping with the anti-oxidant is discussed at page 35, lines 3-7.

The examiner has maintained the obviousness rejection in the Advisory Action. In the action, the examiner alleges that:

- (a) the features such as prevention of discoloration and superior wear resistance are not recited in the claims; and
- (b) it is not clear from the examples 4 and 15 whether the improvement in wear is due to an increased vitamin E concentration or due to doping of the consolidated PE.

Applicants methodology provides several new and unexpected advantages not provided by prior art approaches. First, by avoidance of melting of the polymer, crystallinity of the cross-linked polymer is preserved, which in turn preserves mechanical properties and fatigue resistance. See specification at page 1, line 24 to page 2, line 2. Applicants' methodologies also (i) allow for a gradient of antioxidant in the consolidated material while (ii) minimizing thermal degradation of the antioxidant and (iii) yellowing of the material that includes the antioxidant during consolidation. See specification at page 18, lines 12-25. These advantages are only provided by applicants' methodologies, and cannot be achieved via melting of cross-linked polymer (prior art) or doping of unconsolidated polymer, such as a powder or flake (prior art). Accordingly, MPEP § 716 compels withdrawal of the rejections.

Applicants respectfully submit that the claims, as amended, more clearly recite wear resistance and oxidation resistance. Applicants also provide a declaration from Dr. Orhun Muratoglu, who discusses how these properties are imparted upon polymeric materials through practice of the recited methods.

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Applicant respectfully submit that the claims are in condition for allowance, and that Dr. Muratoglu's declaration should address any questions or concerns that the examiner has. Applicants therefore request withdrawal of the rejections and allowance of the claims.

Respectfully submitted,

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Date

PROSKAUER ROSE LLP  
1001 Pennsylvania Ave., NW  
Suite 400  
Washington, DC 20004  
Telephone: (202) 416-6800  
Facsimile: (202) 416-6899  
Customer No. 61263

  
John P. Isacson  
Reg. No. 33,715